

**U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Calliandra locoensis*

COMMON NAME: no common name

LEAD REGION: 4

INFORMATION CURRENT AS OF: October 31, 2005

STATUS/ACTION:

☐ Species assessment- determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status

☐ New candidate

☒ Continuing candidate

☐ Non-petitioned

☒ Petitioned - Date petition received: May 11, 2004

☐ 90-day positive - FR date: ☐

☐ 12-month warranted but precluded - FR date: ☐

☐ Did the petition request a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:

a. Is listing warranted (if yes, see summary of threats below)? yes

b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? yes

c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded. We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for this species has been, for the preceding 12 months, and continues to be, precluded by higher priority listing actions (including candidate species with lower LPNs). During the past 12 months, almost our entire national listing budget has been consumed by work on various listing actions to comply with court orders and court-approved settlement agreements, meeting statutory deadlines for petition findings or listing determinations, emergency listing evaluations and determinations, and essential litigation-related, administrative, and program management tasks. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures. For information on listing actions taken over the past 12 months, see the discussion of "Progress on Revising the Lists," in the current CNOR which can be viewed on our Internet website (<http://endangered.fws.gov/>).

☐ Listing priority change

Former LP: ____

New LP: ____

Date when the species first became a Candidate (as currently defined): October 25, 1999

____ Candidate removal: Former LP: ____

____ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

____ U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

____ F - Range is no longer a U.S. territory.

____ I - Insufficient information exists on biological vulnerability and threats to support listing.

____ M - Taxon mistakenly included in past notice of review.

____ N - Taxon may not meet the Act's definition of "species."

____ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering plant - Mimosaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Puerto Rico

CURRENT STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Puerto Rico

LAND OWNERSHIP: Both known localities occur on land managed by the Puerto Rico Department of Natural and Environmental Resources.

LEAD REGION CONTACT: Richard Gooch, 404/679-7124

LEAD FIELD OFFICE CONTACT: Dr. Jorge E. Saliva, Caribbean Field Office, 787/851-7297

BIOLOGICAL INFORMATION:

Species Description

Calliandra locoensis is a spiny leguminous shrub, branching from the base of the trunk, of up to 3 meters in height; bark peels-off easily; small branches barely pubescent; triangular, acuminate stipules, 3-5 mm long, striated, joined at the base, and armored with a straight, glabrous dorsal spine of 3-13 mm in length; compound leaves are paired pinnae, each pinna with acuminate to rounded apex, slightly ciliated on its margin, and reticulate with an asymmetric central vein; 10-14 pubescent, greenish-red, 3-4.5 mm long flowers per axis; legume is linear, brownish-red, 28-67 mm long and 2-6 mm wide, and brown seeds with darker splotches.

Taxonomy

No common name (*Calliandra locoensis*) Candidate Form

The genus *Calliandra* is composed of about 130 species that are strictly endemic to the Americas (Barneby 1998). Species previously described as belonging to the genus in Africa, Madagascar, and Asia have been excluded based on specific morphological features. Twenty-five native species of *Calliandra* have been reported for the Antilles. Of those, three are native to Puerto Rico: *Calliandra portoricensis*, *Calliandra haematomma*, and *Calliandra locoensis*. The latter, *Calliandra locoensis*, is endemic to Puerto Rico and was only discovered in 1991 during a study of the flora of the Susúa Commonwealth Forest. García and Kolterman (1992) described it in 1992.

Habitat/Life History

The areas within the Susúa Commonwealth Forest where *Calliandra locoensis* is found are composed primarily of subtropical dry vegetation on loose, shallow, serpentine soil. This soil is low in nutrients, high in drainage (due to its granular texture), and generally low in fertility. González (1998) studied aspects of the distribution, abundance, population structure, phenology, pollination, breeding system, and germination for *Calliandra locoensis*. Flowering was found to be synchronous and seasonal, occurring primarily during the dry season, and was found to be more prolific in sunnier areas. Honeybees, five species of butterflies, warblers (*Coereba flaveola*) and hummingbirds (*Chlorostilbon maugaeus*) were observed visiting the flowers. The species exhibited a low degree of self-compatibility in pollination tests. Seeds do not appear to have a biotic dispersal agent, but are dispersed by dehiscence and that may be a factor in the species limited distribution. Seeds have a short viability period, and require mesic conditions for germination.

Historical Range/Distribution

Calliandra locoensis was discovered alongside a creek that drains into the Loco River in the Susúa Commonwealth Forest, Susúa Alta Ward, Municipality of Yauco, Puerto Rico.

Current Range/Distribution

Calliandra locoensis is only known from the Susúa Commonwealth Forest in southwestern Puerto Rico. The Susúa Commonwealth Forest, managed by the Puerto Rico Department of Natural and Environmental Resources (PRDNER), is located in the municipalities of Yauco and Sabana Grande in southwestern Puerto Rico and encompasses approximately 1,314 hectares (3,245 acres). The forest lies within the subtropical moist forest life zone, the most extensive life zone found on the island. Serpentine outcrops, interspersed with Nipe and Rosario clay soils, cover the majority of the forest. These areas have a poor water-holding capacity; therefore, the vegetation is more xeric than might be expected based on the rainfall received in the region. Topography is mountainous in both forests, characterized by steep ravines and intermittent streams. Mean annual precipitation in the Susúa Forest has been reported to be 1,339 millimeters (53 inches). Much of the vegetation in the forest was cut for cultivation, grazing, charcoal production, and wood prior to its designation as a public forest. The vegetation may be described as semi-evergreen to deciduous forest (Silander *et al.* 1986).

Population Estimates/Status

During recent studies in the Susúa Commonwealth Forest, scientists located and marked 398 individuals of *Calliandra locoensis* greater than 0.5 meters (1.6 feet) in height at the La Quebrada locality, and 299 at the El Cerro locality. Seedlings were abundant at both locations (González 1998). About 20 individuals of this species were found accidentally in May 2000 adjacent to a trail that leads to a power line access road (Breckon, personal communication 2004).

THREATS:

- A. The present or threatened destruction, modification, or curtailment of its habitat or range. *Calliandra locoensis* is endemic to Puerto Rico and known only from the Susúa Commonwealth Forest. Activities known to have occurred in the past in the area include the planting of crops such as coffee, avocado, and oranges, the production of charcoal and firewood, and cattle grazing. The populations are easily accessible and may be threatened by developments proposed within the forest, as well as by forest management practices. Proposals for development in the forest have included the establishment of hotels and the construction of roads. Management practices that might affect the species include the development and maintenance of trails, and the effects of increased visitor use and potential for fire in this xeric environment. No management plan for the forest has been prepared.
- B. Overutilization for commercial, recreational, scientific, or educational purposes. Collection has not been documented as affecting *Calliandra locoensis*.
- C. Disease or predation. Neither disease nor predation has been documented as factors affecting the species.
- D. The inadequacy of existing regulatory mechanisms. The Commonwealth of Puerto Rico has adopted a regulation that recognizes and provides protection for certain Commonwealth listed species. However, *Calliandra locoensis* is not on this list. Federal listing would provide protection under the Act, and, by virtue of the existing cooperative agreement under section 6 of the ESA, would ensure its addition to the Commonwealth list.
- E. Other natural or manmade factors affecting its continued existence. One of the most important factors affecting the continued survival of this species is its limited distribution. Damage caused by Hurricane Georges in 1998 in the Susúa Forest was severe. Landslides, defoliation, and tree falling were extensive. Nevertheless, while individual specimens of *Calliandra locoensis* were affected, such disturbance may play an important role in reproduction and recruitment (e.g., increased flowering in sun-exposed areas, seed dispersal). Because of the vegetation's xeric nature and past history of fires within the Susúa Forest, a catastrophic spontaneous or man-caused fire could

devastate an entire population. The reduction in pollinator availability due to introduced animals or pesticides may affect fruit and seed set. Africanized bees may displace “normal” honeybees (*Apis mellifera*) from their habitat, preventing them from pollinating the flowers of *Calliandra locoensis*.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

Scientists at the University of Puerto Rico, Mayagüez Campus, through a cooperative agreement with the Service, have studied aspects of the life history of *Calliandra locoensis*.

SUMMARY OF THREATS (including reasons for addition or removal from candidacy, if appropriate):

The restricted distribution, potential for urban development, forest management practices, small number of individuals in both populations, and catastrophic natural or manmade events, threaten *Calliandra locoensis*. These threats are not imminent, because the known populations are found within the Susúa Commonwealth Forest that afford some level of protection; however, they provide sufficient information on biological vulnerability to maintain *Calliandra locoensis* as a candidate species, albeit issuance of the proposed rule on this species is precluded by higher-priority listing actions.

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5*
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude:

Calliandra locoensis has a restricted distribution that renders this species vulnerable to natural (e.g., fires, hurricanes, landslides) or manmade (e.g., construction projects, recreational activities) threats to its habitat and populations. Catastrophic natural events within their distribution may affect the entire population of this species.

Imminence:

Since *Calliandra locoensis* is found only within the Susúa Commonwealth Forest administered and managed by the PRDNER, the immediacy of manmade threats to the species is medium to low. Although at present a specific management plan for the Susúa Commonwealth Forest has not been prepared, management plans for Commonwealth forests include the protection and conservation of species classified under PRDNER regulations as critical, threatened, or endangered. Actions that may impact such species are generally scrutinized and measures to minimize or avoid impacts to these species are recommended and implemented, if deemed appropriate.

Rationale for Change in Listing Priority Number (insert if appropriate):

Yes Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing warranted? No. At the time of this review, there was no indication that threats to *Calliandra locoensis* have increased, or that the population numbers have been reduced from previous numbers.

DESCRIPTION OF MONITORING:

Dr. Gary Breckon (University of Puerto Rico at Mayagüez) informed us in 2004 that, although the wild population of *Calliandra locoensis* has not been monitored since 1998, 20 individuals of this species were observed in May 2000 within the Susúa Commonwealth Forest. The Boquerón Field Office allocated funding in FY 2005 (report due in September 2006) to the Center for Development and Research of the University of Puerto Rico, to conduct extensive literature review and population surveys of *Calliandra locoensis* at historical and potential sites.

COORDINATION WITH STATES:

The Service works closely with the Puerto Rico Department of Natural and Environmental Resources in the coordination of research on *Calliandra locoensis* at the Susúa Commonwealth Forest funded by the Service.

Indicate which State(s) did not provide any information or comments: N/A

LITERATURE CITED:

- Barneby, R. C. 1998. Silk tree, guanacaste, monkey's earring: A generic system for the synandrous Mimosaceae of the Americas. Part III. *Calliandra*. Memoirs of the New York Botanical Garden 74(3): 1-223.
- García, R. G. and D. A. Kolterman. 1992. Nueva especie de *Calliandra* (Mimosaceae: Ingae) del suroeste de Puerto Rico. Caribbean Journal of Science 28: 56-61.
- González, M. A. 1998. Population and reproductive ecology of *Calliandra locoensis* García & Kolterman (Mimosaceae), an endemic species of southwestern Puerto Rico. M.S. thesis, University of Puerto Rico, Mayagüez Campus.
- Silander, S., H. Gil de Rubio, M. Miranda, and M. Vázquez. 1986. Los Bosques de Puerto Rico, Volume II. Compendio Enciclopédico de los Recursos Naturales de Puerto Rico. Puerto Rico Department of Natural Resources, San Juan, Puerto Rico. 389 pp.

